



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : **Confirmation No. 2898**
Kanji HATA et al. : **Atty Docket No. 2000_0351**
Serial No. 09/534,262 : **Group Art Unit 3729**
Filed March 24, 2000 : **Examiner R. Chang**

COMPONENT MOUNTING APPARATUS
HAVING COMPONENT SUPPLY TABLES
PROVIDED ON OPPOSITE SIDES OF A
COMPONENT TRANSFER PATH (As Amended):

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PATENT OFFICE FEE TRANSMITTAL FORM

TECHNOLOGY CENTER R3700

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Attached hereto is a check in the amount of \$180.00 to cover Patent Office fees relating to filing the following attached papers:

Information Disclosure Statement \$180.00

A duplicate copy of this paper is being submitted for use in the Accounting Division, Office of Finance.

The Commissioner is authorized to charge any deficiency or to credit any overpayment associated with this communication to Deposit Account No. 23-0975, with the EXCEPTION of deficiencies in fees for multiple dependent claims in new applications.

Respectfully submitted,

Kanji HATA et al.

By Michael S. Huppert

Michael S. Huppert
Registration No. 40,268
Attorney for Applicants

MSH/kjf
WENDEROTH, LIND & PONACK, L.L.P.
2033 K St., N.W., Suite 800
Washington, D.C. 20006-1021
Telephone (202) 721-8200
June 3, 2003

[Check No. 55939]

2000_0351



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Kanji HATA et al.

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THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEES FOR THIS PAPER TO DEPOSIT
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INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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TECHNOLOGY CENTER R3700

Sir:

Pursuant to the provisions of 37 CFR 1.56, 1.97 and 1.98, Applicants request consideration of the references listed on attached form PTO-1449. A legible copy of each reference listed on the form PTO-1449 is enclosed.

1a. ☐ This Information Disclosure Statement is submitted:

within three months of the filing date (or of entry into the National Stage) of the above-entitled application, or

before the mailing of a first Office Action on the merits or the mailing of a first Office Action after the filing of an RCE,

and thus no certification and/or fee is required.

1b. ☒ This Information Disclosure Statement is submitted

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after the events of above paragraph 1a and prior to the mailing date of a final Office Action or a Notice of Allowance or an action which otherwise closes prosecution in the application, and thus:

- (1) ☐ the certification of paragraph 2 below is provided, **or**
- (2) ☒ the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

1c. ☐ This Information Disclosure Statement is submitted:

after the mailing date of a final Office Action or Notice of Allowance or action which otherwise closes prosecution in the application, and prior to payment of the issue fee, and thus:

the certification of paragraph 2 below is provided, and
the fee of \$180.00 specified in 37 CFR 1.17(p) is enclosed.

2. It is hereby certified

- a. ☐ that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the Statement, or
 - b. ☐ that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of the Statement.
3. ☐ Consideration of the following list of additional information (including any copending or abandoned U.S. application, prior uses and/or sales, etc.) is requested.
4. For each non-English language reference listed on the attached form PTO-1449, reference is made to:
- a. ☐ a full or partial English language translation submitted herewith,

- b. ☐ a foreign patent office search report (in the English language) submitted herewith,
- c. ☐ the concise explanation contained in the specification of the present application at page,
- d. ☒ the concise explanation set forth in the attached English language abstract,
- e. ☒ the concise explanation of references **AA**, and **AK** is set forth below:

Haan et al. (USP 4,875,285) discloses that a rotatable and displaceable multiple equipping head 1 is capable of moving in a range broadened between both sides of a rear portion of a board positioning area in a board transfer line. Further, in Haan, the head 1 is supported so as to be driven forward and backward in the **Y-axis** direction of the XY-direction, the robot (carriage 6) for driving the head 1 is cantilevered and a component supply section is arranged at the rear portion of the board positioning area of the board transfer line. Therefore, the Y-axial stroke of the robot is increased and then such an increase needs to enhance the Y-axis drive-holding structure rigidity. In addition, the robot is driven in the **X-axis** direction, and thus, the rigidity of the Y-axis drive-holding structure must be further increased relative to an X-axis drive-holding structure. Therefore, the weight of the drive unit of the robot is remarkably increased, which makes it impossible to perform higher speed and higher accuracy mounting.

The provision of the component supply section at the rear portion of the board transfer line makes its workability and maintenance worse with respect to component supply and requires that the component supply section be widened, thereby resulting in an increased size of the component mounting apparatus.

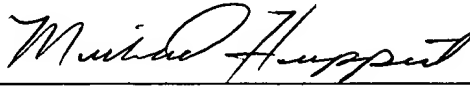
EP 0 453 369 A1 discloses that a board is positioned in a Y-axis direction while mounting heads are positioned in an X-axis direction on both sides of a board mounting position along a component suction line. Therefore, when large-sized components are mounted on the board, the board is moved in the Y-axis direction, resulting in a possible shift of the mounted large-size components on the board. In order to prevent such shift, the board moving speed must be decreased, thus significantly increasing the mounting time.

In addition, the component suction line is arranged along the component mounting line, but actually, it is difficult to align the component suction line and the component mounting line relative to each other because the straightness is not zero, resulting in possible shifts between the lines, thereby causing shifts in the component suction positions and making small-sized component mounting unstable.

5. ☐ A foreign patent office search report citing one or more of the references is enclosed.

Respectfully submitted,

Kanji HATA et al.

By 

Michael S. Huppert
Registration No. 40,268
Attorney for Applicants

MSH/kjf
Washington, D.C. 20006-1021
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Facsimile (202) 721-8250
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